Performance Measures - Pediatric Grand Rounds-20241101_082941-Nov. 1, 2024 Meeting Recording

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46m 35s

Kamat, Deepak M started transcription

Kamat, Deepak M 0:23

Today I'm going to start is 730.

Good morning. It's 730 on time to start pediatric grand rounds.

GJ

Gregory, Andrew J 0:26

Translate.

Kamat, Deepak M 0:31

The CME code is in the chat box, and I'll keep repeating it every 10 to 15 minutes.

Again, a quick reminder, please complete the evaluations at the end of the presentation so we can provide feedback to the speaker.

It's my great honor.

And pleasure to introduce a friend who is present. Going to present grand rounds today.

Doctor Andrew Gregory is associate professor of orthopedics, Pediatrics and neurosurgery at Vanderbilt University School of Medicine and Associate program director for Pediatrics Sports Medicine Fellowship.

And Co director for random and Sports Concussion Center, as well as team physician for USA Volleyball National Soccer club Vanderbilt University and Nashville Christian High School.

Doctor Gregory completed a Bachelor of Science in Chemistry at Indiana University and received his Doctor of Medicine from the University of Alabama School of Medicine.

He didn't finish a pediatric residency at University of Alabama in Birmingham before his fellowship in primary care sports medicine at the American Sports Medicine Institute. He he joined the Vanderbilt faculty in August of 2001, where he sees young sports medicine patients in Vanderbilt Sports Medicine Center.

And the pediatric orthopedic clinic at Vanderbilt Children's Hospital. Today, he's

going to discuss.
Youth Sports injury prevention.
Doctor Gregory, thank you very much for accepting our invitation.
I'm looking forward to your presentation. The floor is yours.

GJ **Gregory, Andrew J** 2:03
Thank you very much Deepak, for the invitation for having me.
For for those of you who don't know, Deepak and I have served on the planning group for the APNCE.
This is my sixth year in so I'm rotating off but had the opportunity to work together if you haven't been to that meeting. There's a lot that goes into it and I would highly encourage you to attend either in person or virtually as you're able.
As he said in the introduction, my my background is in both Pediatrics and.
Sports medicine.
So I'm dual boarded but it gives me a perspective kind of I think on those who've gone through pediatric training and I think it is applicable to this particular topic because we don't get a lot of information on this topic in general. And so I'm going to talk.
A little bit about my background getting into it, but before I do that I just wanted to sort of bring up a couple things that.
Gives perspective and that is.
That I still take care of a high school football team.
So our our state is still playing.
We had our last regular season game last night in the rain.
And then the playoffs start this week.
But even though I do some stuff at a more elite level.
I have to say my my love of it began at the high school level and I still do that because I really enjoy it.
And if if you have the opportunity to do that, I would just really encourage it because a lot of high schools don't have medical coverage, whether that be an athletic trainer, a doctor.
Both. So as far as disclosures, I am an editor up to date, but the topic that I edit has nothing to do with this presentation.
Some basics I think.
Anyone who takes care of kids knows that.

Kids at the youth level have a very high participation in sport.
Sadly, somewhere around the teenage level it starts to drop off and then significantly after that, and one of the things we worry about is is injury in sports.
So if you look look at overall injury and youth sports is the leading cause.
And so obviously there is a cost to that. But then what we worry about is you know, is that a reason for people to stop participating?

DV **Daniel Vijjeswarapu** 4:25
Play.

GJ **Gregory, Andrew J** 4:30
And so whatever we can do to prevent injury, it it makes sense.
And so that is why I bring this up today. And the other thing to to be aware of is that.
It may contribute to the problems we have and overweight and obesity as well as post traumatic arthritis.
So you may think you know this is early in a sports career.
We don't have to worry about that as much, but.
ACL tears. A good example can lead to knee arthritis can and affect this for a lifetime.
So good to be aware of kind of the foundation.
I first sort of became more aware of this topic when I went to a meeting about it, which was the I believe this was the second meeting on Sports injury prevention.
It was international and this just happened to be in Truma, Norway, which is north of the Arctic Circle.
And this is where I got exposed to this topic and I will just say that a lot of my friends.
Who I've made in this world were at this meeting and continue to attend the meeting. The most recent one was this year in Monaco.
And so if you have more interest in this area.
There are specific meetings about it.
This is where I learned the injury prevention model, and so the idea here is that.
In order to make this work, you first have to define a problem, identify the risk factors associated with that problem to sign an intervention, test the intervention, and then implement it, and then evaluate it.
And historically, I would say we've been pretty good about identifying problems, risk factors, interventions.

We have not been as good about testing.
The interventions and evaluating the whole process.
And so I would say just within the last few years.
We seem to be getting more information about this that I'm gonna share with you, but realize we have a lot of stuff based on what are clear risk factors and interventions.
So if you look at this in in athletes and and this is where it becomes much more complex very quickly, is looking at risk factors. And so you can you can look at internal risk factors.
In our group that we're talking about, specifically its age, we're interested in primarily, but you can see all the other things that are associated with it. Certainly the external risk factors. And again, I'm going to draw your attention to some specific examples.
So coaching being a big one, 'cause, I'm going to come back to that at the end, but then some specific things like about equipment, so helmets.
Or in certain sports like.
Snowboarding risk guards and so again this is how you can kind of understand these things that there's lots of things that contribute.
But really, we're we're picking out one specific risk factor and then there is some inciting events and and you have an injury. And so again, I think if if you put it in this perspective, it's it's easier to understand some of the things that we're going to put.
To the test as I go on with this.
So the question that I would pose to you is if I provide you with a proven injury prevention technique, which I'm going to give you several that we have good proof on, what's the best way to implement it, or are we even the right people to be asking?
This question are we the ones who are supposed to be telling people what to do or or do the coaches really understand better about how we should be implementing it? And and I would put it to you.
That is probably the coaches.
And I'm going to come back to that later.
I'm going to give you some data. This is obviously.
Older now from 20 years ago, but this is systematic review on injury prevention research, specifically in the high school athletes.
So if you look at historically, we have a lot of data on adults just like other areas and

not a lot on youth. We have pretty good data now in the high school arena. And I would say less so in the Youth sports arena. But I want to.
Share with you some of this data because again, this is.
Proven stuff.
So what we know is mostly around the sports.
Soccer, American football and basketball. We know less about other sports and if you look at specific injuries, Ankle, head and knee.
But really upper extremity.
Less well known. Again, if you're familiar with U sports and the age of the athlete, the upper extremity is more at risk when you're younger.
I talked a little bit about this, but if you look at these areas of extrinsic risk factors, we have some data on this in in the youth or high school athlete.
We know that competition is is higher risk.
You can see in which sports there.
We know that cross country, if you if you look at it as a sport in particular it has a much higher risk in practice during during competition and if you're familiar with the sport, it's because of there's a lot more volume during practice and the races are typ. Much shorter.
So that's makes sense.
Some data on turf and grass, which comes up in a lot of sports, football and soccer, kind of being the most common one. And really what we've learned is that the injuries are similar in rate, but really kind of different in location. And so depending on where you.
Have turf or grass?
You might have a different injury pattern.
And then some interesting data on equipment.
I alluded to this a little bit, but.
Often times we're using braces or padding for return to play, and we don't necessarily have a lot of data on it.
But lacrosse is a great example, so I put the lacrosse Google up there in the top right.
We know from data collected in the high school Rio program that using these protective goggles significantly affected both eye and nose injuries and so.
Protective equipment seems to work in general, but we don't necessarily have data about everything.
If you look at ankle braces and tape in high school football players, it is effective in

preventing injury and if you look at knee pads in all athletes, they have lower incidence of injury. So there is some pretty good data on protective equipment, just not for all sports.
And then I'm going to kind of spend, I think a little more time on on coaching stuff. 'cause, I think this is where a lot of our effort should go into the future, but there isn't a lot of data on coaching education.
In the cheerleading world, they just showed that if you have somebody who's more educated and more experienced, the injury risk goes down.
And then in concussion, which is something that has gotten a lot of attention, we've learned a lot about more recently that we know that those who are educated about concussion, the risk.
Goes down and that is probably because they're not sending people back who are getting re injured.
I alluded to some intrinsic risk factors, so again I would say age is kind of the big one in, in our world, but we'll talk about some different things.
Gender. Interestingly, there's contradictory data on sports that are similar.
So basketball is a good example.
Seems to be similar. Lacrosse male players have a higher rate, but if you're familiar with that sport, the male sport is contacting the female sport is not.
And soccer looks like males have a higher risk.
But it really depends on what age group you're looking at, so that isn't really clear.
But there is certain things that are very clear.
And that is if you look at knee injuries and adolescent females versus males, the risk is about 5 times higher for girls.
And I think this is really important when we talk about injury prevention here, we've identified a significant risk. If you look at cross country, again, girls are at higher risk and that's probably because of stress fractures. And so again, if you understand that this is something where we.
Could put some.
Energy into but no difference for other kind of specific injuries like.
Ankle sprains, concussions or others.
I mentioned this about age and this seems to bear out pretty well that the the older.
Athletes who are probably bigger and faster have a a higher risk, and that's true in in both wrestling and football. The high school level, if you look at concussion rates, again it seems to go up as you go up in grade, but not necessarily in all sports so.

You can see in soccer it's it's actually gone down.
This is a big one, which is previous injury and I would argue this is where we should spend our time when we're doing our pre participation physicals asking about previous injury and what can we do to prevent the next injury.
But if you look at it in cheerleading, in football it's it's twice the risk. If you look at it in soccer, 75% increased risk. If you look at ankle sprain in a football increase risk and then we know this about concussion that.
If you've had a previous concussion, your risk goes up and that's probably a linear relationship, but.
This is something that bears out across the board, and so again, if you've had a previous injury which we should be learning during your pre participation physical, it bears spending some time talking about what, how can you prevent this from happening again.
Because we know the risk is very high.
Another one that I think is interesting is body size.
So if you look specifically in football.
If you look at those who have higher body fat or BMI, they just have an increased overall risk of leg injuries.
But then specifically in ankle sprains where we know your risk is already higher, it is significantly higher if your BMI is up. And so again your football lineman who's had an ankle sprain is the one that we need to be spending time on talking about prevention with BR.
Or taping or balance training.
And then again, looking at performance measures in this age group, I'm gonna draw your attention to.
The the fact that the the female athletes who participate in volleyball, basketball and soccer, you can look at them and see how they land from a jump, for instance, and see how their their knee and their hip are affected and and determine who's at risk.
And so.
If you are.
Involved in any of these sports or you have a a child in any of these sports or you take care of a high school.
This is something that should be incorporated at the high school level where we know these athletes are at risk.
The next question is well, if you identify this being a risk factor, what can you do

about it?
And so they kind of looked at different ways of of intervening and.
Physical therapy or training methods.
And couldn't really figure out with balance how that was affected.
But we're gonna come back to that.
And then if you look at psychosocial variables.
There is some evidence here and I think this is something that's being increasingly looked at, is how mental health plays into this and again.
It is somewhat predictable that if you you have high fatigue, if you have negative life changes, your risk of injury goes up.
So I'm gonna change tactics a little bit here and talk a little bit about load because I think.
This is something there is more data on recently, which is how much is too much and.
One of my colleagues in at Emory, Neeri Jianthe, has some good data on talking about how can we cancel youth, and I'm going to come back to this. But if you look at.
Load. There is a a positive association between cumulative load and injury, and the idea here is that the more you do the increase your risk of injury.
So the real question is, is there a breaking point at which you can say well, too much load? This is too much or this is not enough and bottom line is this probably sport specific and and we really need more information on it.
But if you look at ACL in general, which is something I we've identified.
As being a risk factor, we actually have some good information on a prevention of ACL injury.
And I put up here, my colleague Tim Hewitt, who used to be at Cincinnati but is now at Marshall.
He really was the first person to prove this, that if you put the whole team through jump training and landing techniques that you can actually reduce the injury rate of females to that equal to males. As far as ACL goes.
And so he was the first one to prove this. But other people have gone on to do work in this area.
But I would just say we have evidence now to show that if you teach people how to do this correctly, you can lower their injury rate.
There's a a similar program that was done in in LA called the PEP program, and again

they looked at adolescent females. They use the team a model where they had the whole team trained and how to do this correctly.
And again, they were able to lower their injury rates.
They use videos and a handout and again this is available.
You can use this.
And then.
One of the pediatric sports docs at Lurie Children's developed a program that she made available for inner city youth and was able to do the same thing to to decrease injury risk in this adolescent female age group.
And so I think we have really good data on this. So we know this works that the real question is how do you implement this?
How do you get people to do this?
So my daughter was a high school soccer player and.
And we developed a video and we took it to the team and luckily the the coach was a player who had been at Vanderbilt previously. And so I had a relationship with and she incorporated this into her team's warm up and I think.
This is a a good example of of how you have to go about this, which is if if you may get something extra they have to do, it's it's much less likely to be done.
But if you incorporate into what they're already doing, which in this case is their warm up, then you just make a part of what they're they're used to doing and it becomes incorporated very quickly.
And so again I I would suggest this is a good method of going about this and that you should be thinking how you can implement this in your area.
Fifi.
Has tried to take this internationally and.
This exercise model is called the FIFA 11 and they have one specifically for children.
Again, that the idea here is to prevent this, and youth soccer players and so including this in the warm up and you can see there's data on this where again overall injury risk goes down specifically in the lower extremities, specifically in the knee and the ankle and so.
Even beyond just the high school level.
We should be incorporating this and use soccer.
So again, we've got to get this information to the coaches if if we expect this to be incorporated.
This is a systematic review looking at some of these team based injury prevention

techniques and in this study there was 10 studies and if you look it isn't clear exactly which of these things.
It is.
It is important, meaning is it strength?
Is it balance?
Is it perceptions of flexibility?
But it still shows an overall injury reduction and so these things work even though we don't know exactly what component of it it is, it's effective.
There's another systematic review.
This is larger looking at neuromuscular training programs in U sport.
And then again, this is specifically looking at.
Knee injury and you can see again a protective effect at reducing knee injury.
The challenge which they point out here is that even though we know this works.
There's been a significant lack of uptake and ongoing maintenance, so my example in my daughter's high school.
The coach is no longer there. My daughter's no longer there and this is no longer being done.
And so, even though we were able to effectively implement it and get it done, it was not maintained. And so we've really gotta focus on.
Changing what we're looking at into saying not does this work because we already know this works.
It's how do we get it implemented and how do we get people to continue to maintain it?
This is a a study looking at concussion and it's again one of these, I would say hot topics that people are talking a lot about and can we prevent concussion in youth sports. And I mentioned that education may help reduce.
Concussion rates secondarily, but that's really probably after you've already sustained a cushion.
Excuse me, a concussion and so.
Is there anything we can do to actually prevent concussion in general?
There's some data from youth sports.
Excuse me.
Youth hockey in Canada, where if you decrease checking at a young age that decreases concussion risk and then in American football, at least in youth, if you decrease contact practices that decreases concussion rate.

Mouth guards I mentioned because this is somewhat controversial.
Because the data is conflicting, but potential evidence for mouth guards. Although I would say take that with a grain of salt because other studies show no difference.
But in rugby it there's some evidence that this neuromuscular training program that I've been talking about for ACL might actually affect concussion rates.
And I I don't pretend to understand why that might be, but there does seem to be some data to that other things that have been proposed.
We don't have data on next strengthening nothing we've done so far has kind of borne out with that.
But this new idea of tackling technique in in football, I think has some potential, which is they call it hawk tackling, where you use your arm to tackle instead of your your head and neck area.
So I would say stay tuned on this, that it does appear that if you decrease.
Contact in general, concussion rates go down, but beyond that, not not a lot.
And then I'm coming back to the EU sports coach's idea, because I think again this is where we are missing out.
Is getting this important information to the people who actually are on the ground doing the work, which is the youth coaches and this is a study from two years ago from the Journal of Athletic Training just showing that.
We have not done a good job of educating youth sports coaches on injury prevention and that we need more programs, protocols and policies.
To affect change.
So again, if you're going to put your energies into an area, this is where I would suggest you do that, because again, this this good data that we've got is not being used at the youth sports level.
I wanna share some things that we have some evidence on that again for the younger medical students and residents out there, I would put to you how do we how do we get these things implemented?
Because we know they work.
So I mentioned this early on, but riskards and snowboarding have some pretty good evidence that.
They work as far as prevention of risk fractures.
But why?
I like snowboarding is they've kind of embraced this into their culture, which is helmets are now cool to wear, right?

If you're a snowboarder that didn't used to be the case.
You can see the the helmet there in the bottom left.
They've incorporated music into the helmet, and that's probably part of the reason why kids are willing to wear it.
I put the picture of these wrist guards.
That have actually been incorporated into the glove itself. And so you don't have to buy a separate wrist guard.
You can just buy a glove with the wrist guard built into it.
So again, I think these are the kind of ideas that we need in order to get this stuff incorporated.
Here's the data on risk guards and snowboard.
This is a systematic review of six randomized control trials, and they all show less risk of wrist injury and is actually protective of the shoulder and maybe even finger and elbow.
Number need to treat 50 snowboarders to prevent one wrist injury.
In my latest area of interest, because I have a one and two year old at home, I've been to a lot of playgrounds, but there's pretty good evidence on playground safety standards.
And I've been impressed how different each playground is. When you go look at it and.
And even variation between cities and states how different playgrounds can be, but just making sure that that these playgrounds meet the safety standards, I think they need to be taken further, which is.
In my world, probably monkey bars is still the number one.
Cause of elbow fractures in children and so how can we change that?
You know, whether it's a sand surface, whether it's lowering the monkey bars, I think we need to do more in this and the other big one, which I'm sure you guys have run into, is this idea of going down the slide with the child in your lap this.
Is how you break their leg. If the child goes down on their own and their leg gets caught, they just stop.
But if their leg gets caught in the.
Is where them the adults body weight pushes past them and breaks their leg.
So how can we prevent adults from doing this, which is something they think is is actually being safe?
I think there should be a picture at the top of every slide with a big X through the the

adult with a child in their lap.
Bicycling, I don't think this is new data to people, but the effectiveness of bicycling helmets and this has been around for a while that that it's pretty clear that that bike helmets work.
We probably need to expand this beyond bicycling to include all kind of wheeled vehicles like.
Pictured tricycles here, but scooters kind of being another big one, and even Atv's. I saw a pair of kids yesterday who'd fallen off the ATV without wearing helmets.
Who both had head injuries. But we know that all these programs work.
So I mentioned how we didn't have a lot of data on implementation in various areas, but we do have this in in bike helmets.
Helmet laws work educational campaigns work distributing free helmets work all these things work.
But we just need to keep doing it. I think again, maybe it lost some of its momentum because it's been a while since we proved all these things effective and so.
Even though there might be newer things out that we have interest in, we can't forget these old things that we know that work. I think in the skiing and snowboarding world, this has been incorporated pretty well. But I still think we need to be worried about.
About this and and Viking and Scootering etcetera.
I've got a lot of resources here for you again, if you're interested in in this area, there's a lot of people doing good work that I think have great information. Again, that we just need to get in the right hands.
So whether that's the AAP healthychildren.org or save kids.org, which is in every state, there is a National Youth sports health.
Safety group that has good data, a smart play which I think is.
Are directed at coaches.
Stop sports, which is the AOSSM organization that has a really good handouts on sports specific stuff.
The Youth Sports Safety Alliance has.
Youth Sports Injury Prevention Month, which is in April every year, and then other good organizations doing good work again.
I think if you have interest in this area, it's worth checking it out. The newer stuff is.
How can we get this on your phone?
And get again this information more readily available and readily usable. I think if the

coach has an app on their phone to do their warm up again, it's right there in their hand.
They don't have to find some clipboard or some video or something like that.
And there is a little bit of data on this.
The one that I'll draw your attention to is get set which has this specific neuromuscular training program.
That you can either do individually or with a team eye prevention ACL is a similar setup.
And then there's various other ones that you may be interested in, depending on what your focus is.
So again, if you have somebody who's got an ankle.
Problem where they've had multiple ankle sprains so that football lineman that I drew attention to, there's an app called Ankle that has a nice program.
USA Football has some great information.
On safe tackling and concussion symptoms.
So again, this is a free app and then the CDC heads up. App is a great one again for youth coaches. If you haven't done the the heads up training, I would highly recommend it.
So they have training programs for youth sports coaches.
They have it for school administrators. They have it for medical providers.
We.
All of our docs who are doing high school football to go through training every year and get the certificate.
I still do it every year, and again I learned something every time.
So I think it is really important, it's free.
That again, if we can get our youth coaches doing this, we know that they're less likely to go back and less likely to be reinjured from concussion.
So I went through that fairly fast.
But in summary, I think we all agree that we want to decrease risk in our Youth sports arena because we know it might have longer lasting implications.
We have some good information already that we really need to share with the interested parties, which I would argue are the Youth sports coaches.
This is the people we need to get into their hands and we need to study.
How we can do that?
How do?

How do we best?
Get the youth sports coaches this information 'cause I think we we aren't good at that and we need to learn how to be better at that.
And so I would.
I would charge us that that we need to be the ones who figure it out and you can either help out on the research side or the the advocacy side. I think sometimes a little bit of both.
I'm going to end this with just a picture.
There I mentioned my daughter playing high school soccer.
I'm very pleased with the fact that she still participates.
In soccer, at the adult level, they have adult leagues here and she's still doing it 'cause she still enjoys it.
So how do we?
How do we keep kids enjoying their sport?
Probably part of the reason she still enjoys it is 'cause. She didn't go to to go on to play college soccer.
Probably that's a good way to get burnt out. Is is playing college sports.
And then I have my young son there on the playground and you can see how happy he is. But.
I wonder how safe this particular playground equipment is.
And so I think we just need to continue.
To study this.
Check it out in your neighborhoods.
Get involved how you can.
But with that, I'm going to end.
I'm going to stop sharing.
And I'll open things up for questions.

Kamat, Deepak M 34:41
Thank you, Doctor Gregory, for that wonderful presentation and.
Forcing you to prevention is already a question in the chat box from the to qoran.
Can you talk a little bit about sleep hygiene and adequate hydration? Any injury prevention?

GJ **Gregory, Andrew J** 34:55

Play.
Yeah, that's that's an interesting question.
So sleep is an area that I think is being studied across the board.
In a lot of different things, but it's been studied in my own sort of knowledge. Most in our world, in concussion and.
It's interesting that if you look at the impact test, which is the test that we use to measure things like memory and processing speed.
Reaction time. It is most affected by the number of hours of sleep you got the night before.
Now, whether how that factors into actual injury is unclear to me, but I would say stay tuned that there's people doing a lot of work in that area.
Some also interesting work on concussion and other injuries, and so if you've been concussed, your wrist seems to be higher of having another injury like an ACL injury.
And I don't think we really understand why that is, but you bring up a good point and I I'd say.
That.
We're still learning.

Kamat, Deepak M 36:04
Is A is a hydration.
Can you comment on that too, yeah.

GJ

Gregory, Andrew J 36:08
Yeah. So hydration, I'd say more what we know about that is in the the Heat illness area and that if your risk is higher for heat illness, if you can't sweat.
And so hydration, really important for sweating and cooling in in my area of the country, the humidity is very high. And so your sweat rate's going to be very high.
So really important to replenish fluids.
Historically, we've spent a lot of time, I think, trying to define.
How much fluid you're supposed to drink? And I think that's really hard to get a kid to sort of monitor.
And so the way I explain that to people is thirst, turns out, is still a good mechanism.
If you're thirsty, drink.
If you're not thirsty, you probably don't have to drink.

But, but making it readily available and certainly not withholding it. But as far as hydration, other injuries I I don't have any data to share with you on that.

Kamat, Deepak M 37:05
Andrew, can you comment on weight training in high school?
Because there is a lot of controversy at what age do you start training and what kind of training weight training do you do?

GJ

Gregory, Andrew J 37:16
Yeah, great question. Great question.

Kamat, Deepak M 37:17
Which is safe, yeah.

GJ

Gregory, Andrew J 37:19
So I would say the controversy has actually ended there.
There is no longer controversy. It is safe.

Kamat, Deepak M 37:25
Oh good.

GJ

Gregory, Andrew J 37:26
There is concerns, I would say still in the area of maximum weight lifting, so trying to develop your one repetition maximum, which is probably only important for the Olympics and otherwise really doesn't contribute much to sports participation cause in most sports you have to do things repetitively.
So what is safe is starting out with body weight. Having somebody who is monitoring form and then increasing gradually.
So particularly in the youth in the high school, there needs to be an adult who's teaching them, who's monitoring them and making sure they're doing things correctly.
But even prior to high school, it's been proven to be a safe activity, and so we should be encouraging it.
Excuse me, it may have even a protective effect on injury.
I mentioned these neuromuscular muscular training programs.

Strengthening is a part of that.
It may be that's the important part.
We don't really know, but we know that strength training is safe and it may have some preventive effects. So we should be encouraging at all ages.
Again, it may be simply body weight. Push ups, sit ups, pull ups or is appropriate really for any age. They just need to be monitored.

Kamat, Deepak M 38:46
And then the chat box comment on sickle cell disease and playing sports.

GJ **Gregory, Andrew J** 38:51
Other good questions.
So if you're familiar, the NC AA now requires all college athletes to be tested prior to entrance.
If you work in this arena, you already know every state does testing at birth, and so people should be aware of their sickle cell status. But.
I'm getting a lot of feedback on them.

Sugalski, Aaron 39:16
That was a crazy time.

GJ **Gregory, Andrew J** 39:22
Aas.
It needs to mute.
There we go. That's better.

Kamat, Deepak M 39:24
OK.
Yeah. Thank you.

GJ **Gregory, Andrew J** 39:25
So sickle cell.
Disease, obviously it's very clear, but sickle cell trait there is some data that heroic workouts. So this has been only in American football and in cadet training, there's been some deaths.

In college age, athletes with sickle cell trait.
And so that is why the NC AA requires it. So the risk is low.
And it seems to be heat related.
There may be some altitude effect that plays into it, but it's just good to be aware of.
If you have trait. If you have muscle cramping, you need to rest.
And so to me, this is as much education as it is anything but.
Again, this is something every kid should know because there's testing at birth.
It's not just if you're an NC AA athlete.

Kamat, Deepak M 40:21
Thank you.
Any other questions?
Comments for Doctor Gregory.

Tran, Hoa Thai 40:29
Yes. Hi, Doctor Gregory.
This is this is wah. I work in the outpatient clinic and so I right now is you know, like sports season and so if X-rays are normal for a kid with some kind of pain like which one would be better for like effective and results like would.
It be a referral to sports medicine or physical therapy.

GJ

Gregory, Andrew J 40:51
That's a great question.
So I think a lot of it depends on the resources in your community.
So if you've seen somebody who's had an injury, they play high school sports.
If you're unclear on what the injury is, I think that's where a pediatric sports provider can be very helpful.
But if you know what it is, so let's say it's an ankle sprain.
There's no reason why you could not refer directly to physical therapy, so.
I think for most of us who went through pediatric residency, physical therapy is somewhat of a black box.
You know what?
How do you get him into this? And it's it's a pretty straightforward thing to do now.
The EMR is really just checking a bunch of boxes which is evaluating treat.
General.

Rehab program returned activity cardiovascular. You can check all these boxes and then usually have to choose a frequency and a duration.
So I usually say twice a week for six weeks, and then you're really transferring care to the physical therapist.
So it's no different than if I send them to physical therapy.
It's really knowing who your local physical therapists are who are good in your community, who work with younger athletes. Even though I work at a large Medical Center and we have physical therapy, most of my patients don't live close enough to utilize that. And so they're having to.
Go back into their own community to do that.
So again, I think if it's unclear what your diagnosis is, that's where a specialist can be helpful.
If you feel comfortable, hey, I I think I know what this is, and I think a direct referral to rehab is totally appropriate.
I will say the injury time is the best time to talk to people about prevention. Like that's when they are most likely to listen to your advice or that pre participation physical.
Otherwise, you know it's it's hard to kind of get this information in there where they're interested in it, right?
So again, I would say even in urgent care or in the ER, that's a great opportunity to talk about. Hey, how do you prevent this from happening the next time, whether that's a head injury or whether that's a, a, an.
Pretty.

Kamat, Deepak M 43:03
Thank you, Andrew.
There is another question in the chat. I know high school sports especially, especially football, a lot of athletes are using supplements like pre workout.
Is there any data on injury risk for these?

GJ

Gregory, Andrew J 43:18
Yeah, so great question, so.
Obviously the big overlying issue with supplements is they're not tested until you don't really necessarily know what you're getting.
Or you you may not be getting what you think you're getting.

You may be getting something that's illegal, like a steroid or a stimulant.
Creatine, I'd say, is the one that there is some data to support. The use of creatine.
And muscle building.
And it seems to be probably those who have low.
Muscle creatine levels to begin with, so probably 50% of people benefit from it.
And I would just say, if you're going to use it, make sure you use a product that does voluntary testing.
So either governmental, which is us pharmacopia or something called NSF which is certified for sport where they want to prove they don't have something illegal in there so that your college and professional athletes can take it.
So that's why I would direct people, the biggest ones, that I would say we need to avoid.
Our stimulants, and there's a lot of that out there. Again, these energy drinks have become more and more complex to understand what is in them. And it seems like there's a new one that comes out all the time and so.
I I see that at the high school level and then on the more sinister side, that would be the the testosterone and testosterone products with things like Tiktok, it's very easy for these kids to quickly learn how to do injectable steroids.
And so that's the ones that we really worry about.
Because those have much more significant effects on multiple body systems.
Including, you know, early epiphyseal closure and lots of mental instability associated with that, particularly in adolescence, so.
If I were going to recommend one, I'd recommend creatine. If I were going to say, what do we need to avoid, it would be stimulants and steroids.

Kamat, Deepak M 45:21
Thank you.
Any other questions, comments or?

GJ

Gregory, Andrew J 45:37
Just finish up 'cause. It looks like we're coming to an end here.
That again, if you have interests in this topic, further look up this.
Injury prevention conference that I think is every other year.
Look into attending the APNCE cause again. There's a lot of programming that goes into this and I'm certainly available by e-mail if people have questions.

Kamat, Deepak M 46:06

OK.

Thank you, doctor Abigail.

Thank you all for attending this morning's grand rounds.

I'm going to conclude, have a wonderful Friday and a wonderful weekend, and please complete the evaluations, which we'll be sending pretty soon.

Thank you.

Thank you, Andrew. Appreciate it.

GJ

Gregory, Andrew J 46:20

Thank you very much.

Good to see you.

Kamat, Deepak M 46:23

To see you too.

Kamat, Deepak M stopped transcription